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After the injected plastic cools to a hardened state forming the sleeve 32, the mold core 50 is removed as shown in Fig. 4. In the next method step of the present invention, the drive shaft 10 extending outward from the motor, not shown, is aligned with the interior bore 33 within the sleeve 32. The tip end portion 16 of the shaft 10 is then inserted into the bore 33 in the sleeve 32 as shown in Fig. 5. The tip end portion 16 seats against the first face 64 closing off the second bore 44 from the first bore 42 containing the sleeve 32. Molten plastic is then injected through the second gate 48 into the first bore 44 to form the thrust member 34, as shown in Figure 5. The thrust member 34 engages the end wall 18 of the tip end portion 16 of the shaft 10 to hold the shaft 10 from axial movement under any axial forces exerted on the shaft 10 during operation of the motor and gear.

In the claims:

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1. (Amended) In a motor/gear drive having a cantilevered shaft with a worm gear carried thereon and a free tip end portion with an outer diameter terminating in an end wall, and a housing having a bore formed coaxial with respect to the shaft to be installed therein, the improvement comprising:

a plastic annular sleeve within the bore of the housing concentrically disposed to be positionable about the outer diameter of the tip end portion of the shaft to be installed and to be nominally spaced radially from the outer diameter of the tip end portion, and wherein the sleeve is operable to supportingly engage the outer diameter of the tip end portion of the shaft only in response to radial loads acting to deflect the shaft into contact with the annular sleeve.

2. (Amended) The improvement of claim 1 wherein the sleeve is an injection molded sleeve formed in situ within the bore of the housing.

3. (Amended) The improvement of claim 1 further comprising:

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the sleeve having a bore extending therethrough, the bore having an inner diameter larger than the outer diameter of the tip end portion of the shaft to be installed.

4. (Amended) The improvement of claim 1 further comprising:

a plastic thrust member within the bore of the housing disposed to be in coaxial registry with the end wall of the shaft to be installed, and operable to be in engagement with the end wall of the shaft to be installed to prevent axial movement of the shaft.

5. (Amended) The improvement of claim 4 wherein the thrust member is an injection molded thrust member formed in situ within the bore of the housing.

6. (Amended) In a motor/gear drive having a cantilevered shaft with a worm gear carried thereon and a free tip end portion with an outer diameter terminating in an end wall, a housing having a bore formed coaxial with respect to the shaft to be installed therein, the improvement comprising:

a plastic thrust member within the bore of the housing disposed to be in coaxial registry with the end wall of the shaft to be installed, and operable to be in engagement with the end wall of the shaft to be installed to prevent axial movement of the shaft.

7. (Amended) The improvement of claim 6, wherein the thrust member is an injection molded thrust member formed in situ within the bore of the housing.

8. (Amended) A method for manufacturing a motor/gear drive having a cantilevered shaft with a worm gear carried thereon, and a free tip end portion with an outer diameter terminating in an end wall, and a housing having a

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bore formed coaxial with respect to the shaft to be installed therein, the method comprising the steps of:

inserting a mold core into the bore of the housing, the mold core having a first end portion with a diameter larger than the outer diameter of the free tip end portion of the shaft and a second larger diameter portion with a shoulder formed between the first and second portions sealingly closing a first portion of the bore in the housing, the first portion of the bore in the housing and the first end portion of the mold core forming an interior cavity therebetween;

injecting molten plastic into the interior cavity through a first gate to form a sleeve having an inner diameter surface surrounding a hollow bore; and

removing the mold core.

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10. (Amended) The method of claim 8 further comprising the steps of:

forming a first flange on the housing;

forming a second flange on the mold core; and

engaging the first and second flanges to align a longitudinal axis of the mold core with an axis extending through the first portion of the bore in the housing.

11. (Amended) The method of claim 8 further comprising the steps of:

forming a second gate in the housing communicating with a second portion of the bore in the housing;

forming an end wall of the shaft with an outer diameter larger than the diameter of the second portion of the bore in the housing;

disposing the end wall of the shaft to sealingly close off an end of the second portion of the bore in the housing;

inserting the shaft into the housing with the free tip end portion of the shaft extending through the first portion of the bore in the housing;

disposing the end wall of the shaft to sealing close the second portion of the bore in the housing; and

injecting molten plastic through the second gate into the second portion of the bore in the housing to form a thrust member in the second portion of the bore in the housing in registry with the end wall of the shaft.

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12. (Amended) A method for manufacturing a motor/gear drive having a cantilevered shaft with a worm gear carried thereon, and a free tip end portion with an outer diameter terminating in an end wall, a housing having a bore formed coaxial with respect to the shaft to be installed therein, the method comprising the steps of:

forming a gate in the housing communicating with one portion of the bore in the housing;

forming the end wall of the shaft with an outer diameter larger than the diameter of the one portion of the bore in the housing;

disposing the end wall of the shaft to sealingly close off an end of the one portion of the bore in the housing;

inserting the shaft into the housing with the free tip end portion of the shaft extending through another portion of the bore in the housing;

disposing the end wall of the shaft to sealing close the one portion of the bore in the housing; and

injecting molten plastic through the gate into the one portion of the bore in the housing to form a thrust member in the one portion of the bore in the housing in registry with the end wall of the shaft.

13. (Amended) A method for manufacturing a motor/gear drive having a cantilevered shaft with a worm gear carried thereon, and a free tip end portion with an outer diameter terminating in an end wall, a housing having a bore formed coaxial with respect to the shaft to be installed therein, the method comprising the steps of:

forming the bore of the housing having a first bore portion of a first diameter; and

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injection molding a sleeve in the first bore portion, the sleeve having a through bore with an inner diameter larger than the outer diameter of a free tip end portion of the shaft.

14. (Amended) A method for manufacturing a motor/gear drive having a cantilevered shaft with a worm gear carried thereon, and a free tip end portion with an outer diameter terminating in an end wall, a housing having a bore formed coaxial with respect to the shaft to be installed therein, the method comprising the steps of:

forming the bore of the housing for receiving the free tip end portion of a shaft; and

injection molding a thrust member within the bore of the housing in registry with the tip end portion of the installed shaft, the thrust member limiting axial movement of the installed shaft.

Please add the following new claims:

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15. (New) The improvement of claim 5 further comprising:

the thrust member injection molded after installation of the shaft, wherein a portion of the end wall of the shaft defines at least a portion of the chamber to receive injected plastic forming the thrust member during injection molding.

16. (New) The improvement of claim 5 further comprising:

the outer diameter of the tip end portion of the shaft to be installed being larger than a diameter of the thrust member engageable with the end wall of the tip end portion of the shaft.

17. (New) A motor/gear drive housing for enclosing a cantilevered shaft supporting a worm gear for engagement with a pinion gear, the cantilevered shaft having one end connectible to a prime mover and a free tip end portion with an outer diameter terminating in an end wall, the motor/gear drive housing comprising:

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at least one peripheral wall defining an enclosed area with at least one open side, at least one aperture formed within the peripheral wall and engageable to encircle part of the free tip end portion of the cantilevered shaft to be installed; and

at least one injection molded plastic annular sleeve formed in situ within the aperture and having an inner diameter positionable to encircle the free tip end portion of the cantilevered shaft to be installed therethrough with at least some clearance therebetween, such that the annular sleeve is operable to supportingly engage the outer diameter of the free tip end portion of the shaft only in response to radial loads acting to deflect the shaft into contact with the annular sleeve.

18. (New) The motor/gear drive housing of claim 17 further comprising:

an injection molded plastic thrust member formed in situ within the at least one aperture of the housing, the thrust member disposed to be in coaxial registry with the end wall of the shaft to be installed, and operable to be engageable with the end wall of the shaft to be installed to prevent axial movement of the shaft, the outer diameter of the free tip end portion of the shaft to be installed being larger than a diameter of the thrust member engageable with the end wall of the free tip end portion of the shaft, the thrust member injection molded after installation of the shaft, wherein a portion of the end wall of the shaft defines at least a portion of the chamber to receive injected plastic forming the thrust member during injection molding.

19. (New) In a method for manufacturing a motor/gear drive housing for enclosing a cantilevered shaft supporting a worm gear for engagement with a pinion gear, the cantilevered shaft having one end connectible to a prime mover and a free tip end portion with an outer diameter terminating in an end wall, the housing having an aperture formed coaxial with respect to the shaft to be installed therein, the improvement comprising the steps of:

plastic injection molding at least one of an annular sleeve and a thrust member in situ within the aperture of the housing, wherein the plastic annular sleeve is positionable to be coaxially sheathing an outer diameter of the free tip end portion

of the shaft to be installed and to be nominally spaced radially from the outer diameter of the free tip end portion of the shaft to be installed, the sleeve operable to supportingly engage the outer diameter of the free tip end portion of the shaft only in response to radial loads acting to deflect the shaft into contact with the annular sleeve, and wherein the plastic thrust member is positionable to be in coaxial registry with the end wall of the shaft, and operable to be engageable with the end wall of the shaft to prevent axial movement of the shaft.

20. (New) The improvement of claim 19 further comprising the steps of:

plastic injection molding both of the annular sleeve and the thrust member in situ within the aperture of the housing.

21. (New) The improvement of claim 19 further comprising the step of:

inserting a mold core into the aperture of the housing prior to injection molding the annular sleeve.

22. (New) The improvement of claim 19 further comprising the step of:

installing the shaft within the aperture in the housing to define at least a portion of a chamber to receive injected plastic prior to injection molding the thrust member.

23. (New) A motor/gear drive housing manufactured according to the method of claim 19 for enclosing a cantilevered shaft supporting a worm gear for engagement with a pinion gear, the cantilevered shaft having one end connectible to a prime mover and a free tip end portion with an outer diameter terminating in an end wall, the housing having an aperture formed coaxial with respect to the shaft to be installed therein, the improvement comprising:

at least one of a plastic injection molded annular sleeve and a plastic injection molded thrust member formed in situ within the aperture of the housing, wherein the plastic annular sleeve is positionable to be coaxially sheathing the outer diameter of the free tip end portion of the shaft to be installed and to be nominally spaced radially from the outer diameter of the free tip end portion, the sleeve operable to supportingly engage the outer diameter of the free tip end portion of the shaft only in response to radial loads acting to deflect the shaft into contact with the annular sleeve, and wherein the plastic thrust member is positionable to be in coaxial registry with the end wall of the shaft, and operable to be engageable with the end wall of the shaft to prevent axial movement of the shaft.

24. (New) The improvement of claim 23 further comprising:

both of the plastic injection molded annular sleeve and the plastic injection molded thrust member formed in situ within the aperture of the housing.

25. (New) In a motor/gear drive housing for enclosing a cantilevered shaft supporting a worm gear for engagement with a pinion gear, the cantilevered shaft having one end connectible to a prime mover and a free tip end portion with an outer diameter terminating in an end wall, the housing having an aperture formed coaxial with respect to the shaft to be installed therein, the improvement comprising:

at least one of a plastic injection molded annular sleeve and a plastic injection molded thrust member formed in situ within the aperture of the housing, wherein the plastic annular sleeve is positionable to be coaxially sheathing the outer diameter of the free tip end portion of the shaft to be installed and to be nominally spaced radially from the outer diameter of the free tip end portion, the sleeve operable to supportingly engage the outer diameter of the free tip end portion of the shaft only in response to radial loads acting to deflect the shaft into contact with the annular sleeve, and wherein the plastic thrust member is positionable to be in coaxial registry with the end wall of the shaft, and operable to be engageable with the end wall of the shaft to prevent axial movement of the shaft.

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26. (New) The improvement of claim 25 further comprising:

both of the plastic injection molded annular sleeve and the plastic injection molded thrust member formed in situ within the aperture of the housing.

27. (New) The improvement of claim 1 further comprising:

the aperture having a first portion of a first diameter and an axially endmost, coaxial, second portion of a smaller diameter, a shoulder formed between the first and second portions, and a first gate formed in the housing communicating with the first portion.

28. (New) The improvement of claim 27 further comprising:

a second gate formed in the housing communicating with the second portion.